THE PRIDE OF LOGAN

The Agricultural College and Experiment Station.

THE WORK THAT HAS BEEN DONE.

The Objects and Purposes of the Institute—Its Origin and Perpetuation—What May be Accomplished.

Mr. J. W. Sanborn, the director of the agricultural college and experiment station, has issued a neat little bulletin, in which he says there seems to be a very general and decisive manifestation of interest on the part of the citizens of Utah in the above institution, and for that reason he cheerfully lays before the public a general statement of its organization and its proposed work.

HISTORIC SUMMARY.

The demand for agricultural experiment stations is the direct outgrowth of the development of the natural sciences, which have shown the great truth, that agriculture is broadly founded on the laws of nature. No other industry or profession is so deeply anchored in law, and none is so complex in its ramifications.

From the opening of this century until 1840, able men in moments spared from the pressure of other investigations, devoted their genius to researches in the fascinating field of science in its application to agriculture. About 1840, Laws & Gilbert in England and Boussingault in France, began systematic researches in agriculture. Their brilliant work coupled with the more brilliant inductions and deductions of Liebig led to the organization of the first official experiment station at Moeckern, Germany, in 1851. It is said that Germany now has 123 such stations. Connecticut in 1854 organized the first experiment station in this country. The example was imitated by other states until their value was so far demonstrated that the nation took up the movement and gave it a national character by an act passed by Congress, March 2, 1887.

This act located an experiment station in connection with the agricultural college of each state or wherever such a college was located and where a state desired such a station.

These stations were organized with a gift of $15,000 from the national treasury for the first year, and with a presumptive gift of $15,000 for each year thereafter.

The Utah Experiment station was founded by an act of the territorial legislature of 1888. It was not actually organized for work until near the opening of 1890, when a director was appointed. By virtue of this fact Congress has given to it but $10,000 for the present year. This sum has not as yet, June 15th, been received.

PURPOSES OF THE STATIONS.

Congress defined in detail the object of these stations. In brief, they are for research in any subject within the broad domain of agricultural art and science that will be of economical value to farmers, and through them of value to the consumers. The stations are not or should not be for the purpose, as some seem to believe they are, of compilation and dissemination of present literature. Newspapers and farm organizations are ample mediums for this purpose. By rod, measure and scale in all the unverified fields of agricultural thought (which is practically the whole field) exact data are to be secured in order to supplant conjecture by certainty, the rule of thumb process by the reign of law. Countless billions of farmers have pursued their industry previous to the middle age of the present generation, and left behind them no settled laws that any group of farmers to that date could have been found to be in accord upon, notwithstanding the fact that there is not a single operation on the farm that does not involve some mathematical, mechanical, physical or natural law—laws capable of solution and fuller and of more importance to humanity than laws in any other domain of life.

These stations, existing for investigation and not primarily as teaching adjuncts of college class rooms, are to sacredly devote their funds to this purpose of research.

THE WORK OF THE UTAH STATION.

At the opening of the past spring, it had eighty-five acres of upper bench land covered with sagebrush, and the hope of an appropriation from Congress. The ground has been plowed, cleared of bushes, and is mostly cleared of rocks, is fenced and has fine buildings under contract—five now going up.

One is a bank barn, 62 feet square and 35 feet high, surrounded by a silo, root cellar, hog house, engine house and wagon shed. All of the work is to be done in this barn from a common centre. Its crops go in by power and are taken out by gravity.

It has a fine laboratory, building for officers, for chemical research and for station work.

It will have the use of a new and model farm and dairy house, distinguished, it is believed, by its conveniences for household and dairy work. Two new laborers' cottages are connected with the station.

The chemical department has a very complete outfit, while a round of appliances for farm and horticultural experimentation have been collected.

This work has been aided by a territorial appropriation for buildings, farm tools and stock. It is proper to say that the territory has manifested a very liberal spirit towards the station and college, a combination of which will soon place both of them, expenditures being equally wise, among the best of the country. The spirit of the law has been the guide of the trustees, thereby opening a fair field for the investigators and teachers associated with the college and station.

EXPERIMENT WORK INAUGURATED.

Eighty-five acres of the farm are now covered with crops; forty acres are now serving the combined purpose of inquiry and economic farming. Regarding these acres as experimental acres, for such a purpose they were intended to serve, the farm is divided into the following lines of inquiry:

1—Fifteen acres are sown to eight varieties of grasses for a pasture of mixed grasses, in order to test the value of mixed grasses vs. single pasture grasses.

2—Ten sections are sown to as many varieties of grass, except the tenth half acre, which is mixed grasses. These are to be grazed by lots of similar animals in each, and growth of animals on each are to be weighed.

3—Twenty-four varieties of grasses and clovers are sown on plats for test of varieties.

4—Varieties of oats, wheat, corn and barley are being tested.

5—A line of the most promising varieties of forage crops are being tested.

6—The sugar plants—sorghum and sugar beets—are being tested with reference to the sugar product. A sugar beet factory is likely to be erected in the territory, hence this inquiry.

7—Sixty-three plats are devoted to irrigation trials:

a. Night versus day irrigation.

b. Flooding and other systems are being tested.

c. Varying amounts of water are being used and results noted.

d. Varying amounts at a given time, but total amount for the season remaining the same.

e. Sub irrigation versus surface irrigation.

f. Length of season that irrigation can be continued successfully.

g. Relation of irrigation to soil fertility.

h. The amount of water percolating through soil under varying applications.

i. Influence of fall irrigation.

j. Manures in their relation to irrigation.

k. Mulching in connection with irrigation.

l. Lateral movement of water in the soil in irrigation.

m. Test of a part of above questions by the use of vessels.

8—Zinc boxes devoted to testing vaporization of water, soils and of the various crops.

9—Continuous test of the power of crops to secure nitrogen from the air.

10—Mulching of corn and of potatoes and the relation of a mulch to yield of crop, to soil temperature, moisture and soil fertility.

11—Mulch of earth to above relations.

12—Drills versus checkrowed corn.

13—Hilling versus flat culture of corn.

14—No tillage, shallow tillage and deep tillage for corn and potatoes and the relations to soil moisture, root growth and crop yield.

15—No harrowing of the ground, and little or much harrowing before planting.

16—No plowing, shallow plowing and deep plowing for wheat and potatoes.

17—Various methods of tilling for potatoes.

18—Various methods of planting potatoes in trenches, shallow and otherwise.

19—Distances of planting potatoes, thirty-six distances being used.

20—Various methods of cultivating potatoes and of using seed potatoes.

21—Various times of planting and harvesting potatoes.

22—Various amounts of seed wheat.

23—Varying times of sowing wheat.

24—Broadcasting versus drilling wheat.

25—Hoeing wheat, rolling and not rolling wheat, etc.

26—Distance of drilling wheat.

27—Varying times of harvesting wheat.

28—Select wheat versus average seed and poor seed.

29—Time of plowing and style of furrow.

30—Depth of sowing wheat.

31—Manure trials, utility, method of application, etc.

32—Soiling cattle.

33—Green versus dry food for cattle.

34—Green manuring.

35—Rotations.

a—Six years' rotation.

b—Four years' rotation.

c—Three years' rotation.

d. Two years' rotation.

e. All of the above rotations have each crop of the rotation start the series, so that there will be in each series a yearly answer without waiting six years, or the number of years of each rotation involved, for an answer to the problem.

Special attention will be given in these rotations to a test of all of the relations of a rotation to soil fertility.

The scientific relations of all of the various questions studied will be closely observed.

36—When the barn is completed, feeding trials will be entered upon along several lines of inquiry in animal nutrition, for each class of our domestic animals—hogs, sheep, horses and cattle. The barn will have a silo, root cellar and other conveniences for feeding trials. Storage of foods in their various relations will be studied, etc. The effect of temperature on the economy of cattle feeding will be investigated.

A full line of meterological instruments will be in use. A superior dynamometer for test of draft of tools, etc., will be at command. This forms an outline of the work for the coming year, but does not state all the questions that will be be investigated on the farm.

HORTICULTURAL DEPARTMENT.

The horticultural department contains twelve acres. It will be fully covered with crops designed for investigation and for school room teaching.

1—It has set an important line of economic forest trees not grown in the territory, for test in this climate.

2—It has growing seventy-five varieties of apple trees.

3—It has growing twenty-five varieties of pears trees.

4—It has growing twenty-five varieties of plum trees.

5—It has growing forty varieties of peach trees.

6—It has growing twenty-five varieties of cherries.

7—It has growing thirty varieties of strawberries, eight of raspberries, eight of apricots and various other fruits.

8—It has varieties of vegetables, including potatoes, under test.

9—It has in progress tillage and irrigation tests of crops falling within its sphere of work.

This department of the station work will be conducted fully in the interests which it represents.

CHEMICAL DEPARTMENT.

The chemical department has not as yet its organization completed, so that work is not yet inaugurated by the chemist. This department has a very complete equipment and will enter vigorously into researches that fall within its sphere, which is a very wide one. It is expected that it will be able to enter in a limited way upon its work in early July, and fully so during the latter part of August.

OTHER WORK.

The first period of organization absorbs funds rapidly. When the organization is completed and expenses are reduced to their normal level other lines of work will be entered upon, covering a wider field. Entomology, animal and vegetable diseases, and other fields, may well be made specialties of. The station will cover all the ground that it can adequately cover. It will, however, be a distinct policy of the station to avoid attempting to cover too many fields of inquiry. The spreading of the station resources over too much ground will result in indifferent work all along the line. It is better for each of the fifty stations of the country to be strong in whatever direction local conditions and special tastes of those in charge demand, than to do uncertain work over a wide field. If in the inquiries the underlying principles are sought, then much of the work done at the stations will be of universal application, and thus local interests and the general interests of the whole country will be best served. All fields of the general work are likely to be involved by the group of national stations, and thus make it unnecessary for each one to cover the whole field.

GENERAL SUGGESTIONS.

Insects or economic plants that interested parties desire identified will be reported upon if forwarded to the station. Information from those interested will be welcome, and requests for work that will be of general interest to farmers will be undertaken when the work on hand will admit. Correspondence upon questions relating to the field of inquiry of this station will always be cheerfully received and considered.